AMENDMENT TO THE CLAIMS:

The following list of claims will replace all prior versions and listings of the claims in this application.

1. (Previously presented) A method of enhancing the effects of radiation directed to a tissue or a population of cells in an animal comprising administering an amount of metal nanoparticles to said animal and subsequently irradiating the animal with radiation directed to said tissue or said population of cells, wherein said radiation is in a form selected from the group consisting of x-rays, microbeam arrays of x-rays, radioisotopes, electrons, protons, ion beams, and neutrons, wherein said metal nanoparticles are administered to said animal in an amount to achieve a concentration in said tissue or said population of cells in the animal of at least about 0.1% metal by weight.

2. (Previously presented) A method of ablating a tissue or a population of cells in an animal comprising administering an amount of metal nanoparticles to said animal and subsequently irradiating the animal with radiation directed to said tissue or said population of cells, wherein said radiation is in a form selected from the group consisting of x-rays, microbeam arrays of x-rays, radioisotopes, electrons, protons, ion beams, and neutrons, wherein said metal nanoparticles are administered to said animal in an amount to achieve a concentration in said tissue or said population of cells in the animal of at least about 0.1% metal by weight.

3. (Original) The method of claim 1 or 2, wherein said animal is human.

4. (Original) The method of claim 1 or 2, wherein said tissue or said population of cells is tumor.

5. (Original) The method of claim 4, wherein said tumor is a solid tumor selected from the group consisting of carcinomas, brain tumor, melanomas, lymphomas, plasmocytoma, sarcoma, glioma and thymoma.

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6. (Original) The method of claim 4, wherein said tumor is myeloma, leukemia, or a tumor of oral cavity, pharynx, digestive system, respiratory system, bones, joints, soft tissue, skin, breast, genital system, urinary system, eye, orbit, the nervous system, or endocrine system.

7. (Original) The method of claim 1 or 2, wherein said tissue or said population of cells are selected from plaques of blood vessels, mesangial cells or basement membrane of kidney, adipocytes, infected lung cells, infected red blood cells, or bone tissue.

8. (Original) The method of claim 1 or 2, wherein said metal nanoparticles comprise at least one heavy metal selected from the group consisting of gold, silver, platinum, palladium, cobalt, iron, copper, tin, tantalum, vanadium, molybdenum, tungsten, osmium, iridium, rhenium, hafnium, thallium, lead, bismuth, gadolinium, dysprosium, holmium, and uranium.

9. (Original) The method of claim 8, wherein said metal nanoparticles comprise at least gold.

10. (Original) The method of claim 8, wherein said nanoparticles comprise at least two heavy metals from said group.

11. (Previously presented) The method of claim 1 or 2, wherein the sizes of metal cores of said nanoparticles are in the range of 0.8 to 400 nm in diameter.

12. (Previously presented) The method of claim 11, wherein the sizes of metal cores are in the range of 0.8-3 nm and wherein said metal is gold.

13. (Previously presented) The method of claim 11, wherein the sizes of metal cores are in the range of 1-2 nm and wherein said metal is gold.

14. (Original) The method of claim 1 or 2, wherein said metal nanoparticles comprise a surface layer material.

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15. (Original) The method of claim 14, wherein said surface layer material comprises a molecule comprising a sulfur, phosphorus or amine group.

16. (Original) The method of claim 15, wherein said molecule is thioglucose.

17. (Original) The method of claim 14, wherein said surface layer material is a molecule selected from the group consisting of a synthetic polymer, a peptide or polypeptide, an antibody or a fragment thereof, a nucleic acid, a carbohydrate molecule, a lipid molecule, a drug, or synthetic molecule.

18. (Original) The method of claim 1 or 2, wherein said nanoparticles are polyanions of metals complexed with quaternary ammonium salts for use in radiation enhancement.

19. (Original) The method of claim 1 or 2, wherein said metal nanoparticles comprises a targeting molecule, wherein said targeting molecule binds specifically to molecules localized within said tissue or said population of cells.

20. (Original) The method of claim 19, wherein said targeting molecule is a peptide or an antibody.

21. (Original) The method of claim 19, wherein said tissue or said population of cells is tumor and said targeting molecule binds specifically to angiogenic molecules in the endothelium of said tumor.

22. (Original) The method of claim 1 or 2, wherein said metal nanoparticles are administered to said animal by intravenous or intra-aretrial injection, direct injection into said tissue or population of cells, implantation of a device capable of a slow release of said metal nanoparticles, or injection into a body cavity.

23-24. (Canceled)

25. (Previously presented) The method of claim 1 or 2, wherein said radiation is in the form of x-rays at a dose of about 1 KeV to about 25,000 KeV.

26-68. (Canceled)

69. (Currently amended) A method of enhancing the effects of radiation directed to a tissue or a population of cells in an animal comprising administering an amount of metal nanoparticles to said animal and subsequently irradiating the animal with radiation directed to said tissue or said population of cells, wherein said metal nanoparticles are administered to said animal in an amount to achieve a concentration of metal in said tissue or said population of cells in the animal of at least about 0.1% metal by weight.

70. (Canceled)

71. (Previously presented) The method of claim 69, wherein said animal is human.

72. (Previously presented) The method of claim 69, wherein said tissue or said population of cells is tumor.

73. (Previously presented) The method of claim 72, wherein said tumor is a solid tumor selected from the group consisting of carcinomas, brain tumor, melanomas, lymphomas, plasmocytoma, sarcoma, glioma and thymoma.

74. (Previously presented) The method of claim 72, wherein said tumor is myeloma, leukemia, or a tumor of oral cavity, pharynx, digestive system, respiratory system, bones, joints, soft tissue, skin, breast, genital system, urinary system, eye, orbit, the nervous system, or endocrine system.

75. (Previously presented) The method of claim 69, wherein said tissue or said population of cells are selected from plaques of blood vessels, mesangial cells or basement membrane of kidney, adipocytes, infected lung cells, infected red blood cells, or bone tissue.

76. (Previously presented) The method of claim 69, wherein said metal nanoparticles comprise at least one heavy metal selected from the group consisting of gold, silver, platinum, palladium, cobalt, iron, copper, tin, tantalum, vanadium, molybdenum, tungsten, osmium, iridium, rhenium, hafnium, thallium, lead, bismuth, gadolinium, dysprosium, holmium, and uranium.

77. (Previously presented) The method of claim 76, wherein said metal nanoparticles comprise at least gold.

78. (Previously presented) The method of claim 76, wherein said nanoparticles comprise at least two heavy metals from said group.

79. (Previously presented) The method of claim 69, wherein the sizes of metal cores of said nanoparticles are in the range of 0.8 to 400 nm in diameter.

80. (Previously presented) The method of claim 79, wherein the sizes of metal cores are in the range of 0.8-3 nm and wherein said metal is gold.

81. (Previously presented) The method of claim 69, wherein said metal nanoparticles comprise a surface layer material.

82. (Previously presented) The method of claim 81, wherein said surface layer material comprises a molecule comprising a sulfur, phosphorus or amine group.

83. (Previously presented) The method of claim 81, wherein said surface layer material is a molecule selected from the group consisting of a synthetic polymer, a peptide or polypeptide, an antibody or a fragment thereof, a nucleic acid, a carbohydrate molecule, a lipid molecule, a drug, or synthetic molecule.

84. (Previously presented) The method of claim 69, wherein said metal nanoparticles comprises a targeting molecule, wherein said targeting molecule binds specifically to molecules localized within said tissue or said population of cells.

85. (Previously presented) The method of claim 84, wherein said targeting molecule is a peptide or an antibody.

86. (Previously presented) The method of claim 84, wherein said tissue or said population of cells is tumor and said targeting molecule binds specifically to angiogenic molecules in the endothelium of said tumor.

87. (Previously presented) The method of claim 69, wherein said metal nanoparticles are administered to said animal by intravenous or intra-aretrial injection, direct injection into said tissue or population of cells, implantation of a device capable of a slow release of said metal nanoparticles, or injection into a body cavity.

88. (Previously presented) A method of enhancing the effects of radiation directed to a tissue or a population of cells in an animal comprising administering an amount of metal nanoparticles to said animal and subsequently irradiating the animal with radiation directed to said tissue or said population of cells, wherein said metal nanoparticles comprise a surface layer material which comprises thioglucose.

89. (Previously presented) A method of enhancing the effects of radiation directed to a tissue or a population of cells in an animal comprising administering an amount of metal nanoparticles to said animal and subsequently irradiating the animal with radiation directed to said tissue or said population of cells, wherein said nanoparticles are polyanions of metals complexed with quaternary ammonium salts.